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EXAMINER	
FORD, VANESSA L	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/726,029	LEONARD ET AL.	
	Examiner	Art Unit	
	Vanessa L. Ford	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-46 and 48-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-46 and 48-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 February 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is response to Applicant's amendments and response filed March 21, 2006. Claims 1-20 and 47 have been cancelled. Claim 53 has been amended. Claims 58-61 have been added. Applicant submission of the declaration filed under 1.132 and exhibit A are acknowledged.

Rejections Withdrawn

2. In view of Applicant's response the following rejections are withdrawn:

(a) rejection of claims 21-57, page 2, paragraph 2 of the previous Office action.

(b) rejection of claims 21-57, paragraph 3 of the previous Office action.

(b) rejection of claims 53-57, paragraph 4 of the previous Office action.

The following rejections are maintained based on Applicant's definition of the term "incidence" set forth in the response filed March 21, 2006. Applicant defines "incidence" as the numbers or percentage of cows that show clinical symptoms of mastitis. See page 12 of Applicant's response.

Rejections Maintained

3. The rejection under 35 U.S.C. 102(b) paragraph is maintained for claims 21-30, 50 and 52 for the reasons set forth on pages 4-5, paragraph 5 of the previous Office Action.

The rejection was on the grounds that Boothby et al teach a method of immunizing bovine by subcutaneously administering to bovine formalin killed *M. bovis* in

Freund's complete adjuvant (page 190). Boothby et al teach that a composition comprising formalin inactivated *M. bovis* protein was infused into the quarters of cows (page 190). Therefore, the prior art teaches the claim limitation "...administering to bovine animals an antigenic component from at least on inactivated or attenuated *M. bovis* biotype. Boothby et al teach that it is apparent that vaccination resulted in a reduced duration of infection (page 194). Therefore, the prior art teaches the claim limitations"...where the administering results in less clinical disease in the bovine animal" and "...whereby the incidence of mastitis in bovine animals is reduced". Claim limitations such as "... comprising administering at least one inactivated *M. bovis* to about 50% of the herd " is viewed as optimizing experimental parameters.

Since the Office does not have the facilities for examining and comparing applicant's method with the method of the prior art, the burden is on the applicant to show a novel or unobvious difference between the claimed method and the method of the prior art (i.e., that the method of the prior art does not possess the same material method steps and parameters of the claimed method). See In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and In re Fitzgerald et al., 205 USPQ 594.

Applicant's Arguments

Applicant urges that Boothby I cannot anticipate the claimed invention. Applicant urges that Boothby et al (1986 reference) do not teach the claim limitation "the incidence of mastitis in the bovine animals is reduced". Applicant urges that Boothby I teach the reduction of duration of infection.

Applicant urges that "incidence" is used in the present application to refer to the numbers or percentage of cows that show clinical symptoms of mastitis. Applicant urges that incidence is not used to refer to a reduction in the duration of infection in those cows that show clinical symptoms of mastitis without an accompanying reduction in number or percentage of such cows. Applicant refers to page 19 in regards to pre-vaccination and post-vaccination incidence. Applicant also refers to pages 21-22 in regards to herd from sites 1 and 2 during January 1, 200 to July 18, 2000.

Applicant urges that the term "incidence" is defined as the number of new cases of a given disease during a given period in a specified population.

Examiner's Response to Applicant's Arguments

It is the Examiner's position that Boothby I teach the claimed invention.

As stated above, Applicant has defined incidence to mean "numbers or percentage of cows that show clinical symptoms of mastitis". Boothby shows a number or percentage of cows that have clinical mastitis. See the Abstract and pages 194-196.

To address Applicant comments regarding page 19 of the instant specification, Applicant disclose that pre-vaccination base line incidence was assessed as 155 confirmed positive clinical *Mycoplasma* infections. Applicant disclose that post-vaccination herd incidence at the first year was 24 confirmed cases of *Mycoplasma* infections and at the second year 1 incidence of *Mycoplasma* infections. Based on Applicant's definition of "incidence", the Boothby I teaches that at weeks 12-15 , 16 quarters or (4 cows) were infected with *Mycoplasma* (page 194) and at weeks 15.5-19.5 all 16 quarters (or 4 cows) were culture-negative for M. bovis (page 194). Therefore, the prior art teaches the claimed invention based on Applicant's definition of the term "incidence".

To address Applicant's comments, regarding pages 21-22 of the instant specification, Applicant shows the changes in number of animals reported from January 2000 to July 2000 at sites 1 and 2. The claims recite "whereby the incidence of mastitis in the bovine animals are reduced". It should be pointed out that site 1 shows

no such reduction. As stated above, the prior art teaches that 4 cows were positive for Mycoplasma infections at weeks 12-15 and at weeks 15.5-19 4 cows were culture-negative for *M. bovis.* Therefore, the prior art teaches the claimed invention based on Applicant's definition of the term "incidence".

To address Applicant comments regarding the online definition of "incidence", neither the claimed invention nor the prior art indicates the number of new cases of a given disease during a given period in a specified population.

There is nothing on the record to show that the method of the prior art differs from that of the claimed invention.

4. The rejection under 35 U.S.C. 103(a) paragraph is maintained for claims 21-31, 50 and 52 for the reasons set forth on pages 5-6, paragraph 6 of the previous Office Action.

The rejection was on the grounds that Boothby et al teach a method of immunizing bovine by subcutaneously administering to bovine formalin killed *M. bovis* in Freund's complete adjuvant (page 190). Boothby et al teach that a composition comprising formalin inactivated *M. bovis* protein was infused into the quarters of cows (page 190). Therefore, the prior art teaches the claim limitation "...administering to bovine animals an antigenic component from at least on inactivated or attenuated *M. bovis* biotype. Boothby et al teach that it is apparent that vaccination resulted in a reduced duration of infection (page 194). Therefore, the prior art teaches the claim limitations"...where the administering results in less clinical disease in the bovine animal" and "...whereby the incidence of mastitis in bovine animals is reduced". Claim limitations such as "... comprising administering at least one inactivated *M. bovis* to about 50% of the herd " is viewed as optimizing experimental parameters.

Boothby et al does not teach β-propiolactone inactivation.

Koski et al teach that mycoplasmas can be successfully inactivated by β-propiolactone (page 153). Koski et al teach that data provided in this study can provide a reference point for inactivation of mycoplasmas using β-propiolactone, formalin or phenol (page 154).

It would be *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use β-propiolactone to inactive *Mycoplasma bovis* used in the method of immunizing bovine as taught by Boothby et al because Koski et al demonstrates that mycoplasmas can be inactivated used as little as 0.05% of β-propiolactone in 2 hours (page 153). It would be expected barring evidence to the contrary that β-propiolactone would be effective in inactivating mycoplasmas.

Applicant's Arguments

Applicant urges that Boothby et al (1986 reference) do not teach the claim limitation "the incidence of mastitis in the bovine animals is reduced".

Applicant urges that Koski et al do not cure the defects of Boothby I. Applicant urges that Koski et al do not disclose or suggest the limitation "the incidence of mastitis in the bovine animals is reduced". Applicant urges that Boothby I and Koski et al do not render the claims obvious.

Applicant urges that Koski et al disclose that the inactivation of *Mycoplasma gallispeticumn*, *Mycoplasma canis* and *Acholeplasma laidlawii*. Applicant urges Koski et al do not disclose the inactivation *Mycoplasma bovis*. Applicant urges that one of ordinary skill in the art would have no reason to combine the two prior art references.

Applicant refers to the declaration submitted under 37 C.F.R. 1.132 to support this position. In the declaration Dr. Joan Leonard discloses that it is surprising that inactivation with β-propiolactone would lead to a vaccine that reduces the incidence in mastitis.

Applicant refers to Boothby et al, 1986, *Can. J. Vet. Res.* (Boothby II) to support their position. Applicant asserts that Boothby II tested whether killed *M. bovis* would be effective as a vaccine and the vaccine was found not to be successful. Applicant

also refers that Rosenbusch teach that the inactivation of *M. bovis* did not confer protection against respiratory diseases. Applicant urges that animals vaccinated by using the vaccines of Boothby II and Rosenbusch led to products that had unacceptable side effects.

Examiner's Response to Applicant's Arguments

It is the Examiner's position that applicant argues the references individually without clearly addressing the combination of teachings. It is the combination of all of the cited and relied upon references which make up the state of the art with respect to the claimed invention. As stated above, Applicant has defined incidence to mean "numbers or percentage of cows that show clinical symptoms of mastitis". Boothby shows a number or percentage of cows that have clinical mastitis. See the Abstract and pages 194-196.

It should be remembered that the Koski et al reference is used in the rejection to teach that mycoplasmas can be inactivated by β-propiolactone. To address Applicants comments regarding the combining the two prior art references to arrive at the claimed invention, it should be noted that Koski et al teach that mycoplasmas can be inactivated using agents such as phenol, formalin and β-propiolactone. Based on teachings of Koski et al, the art recognizes that phenol, formal and β-propiolactone are equivalent agents that have the ability to inactivate mycoplasma.

The declaration submitted by Dr. Leonard is insufficient to overcome the rejection. The declaration appears to be an opinion declaration. In the declaration Dr. Leonard refer to Heller et al , 1993, which discloses method of controlling mastitis and

Hanson, September 2001 and Hanson II, October 2001 which describe methods of preventing mastitis. Neither of these documents addresses the use of β-propiolactone to inactive *M. bovis.*

It should be noted that the claims are drawn to a method of immunizing bovine and not a vaccine. Applicant appears to be using Boothby II and Rosenbusch to argue the vaccine and not claimed method of immunizing.

5. The rejection under 35 U.S.C. 103(a) paragraph is maintained for claims 21-38, 42, 50 and 52 the reasons set forth on pages 6-8, paragraph 7 of the previous Office Action.

The rejection was on the grounds that the teachings of Boothby et al and Koshi et al have been described above.

Boothby et al and Koski et al do not teach different *M. bovis* biotypes.

Poumarat et al teach different M. bovis biotypes. Poumarat et al disclose Restriction endonuclease analysis (REA) with three enzymes *Sma*I, *Pst*I, and *Bam*I which were used to identify 13 different genomic groups (i.e. biotypes) among 37 *Mycoplasma bovis* strains (see the Abstract). Poumarat et al disclose 37 bovis strains studied gave five different electrophoretic patterns with BamHI, four with *Sam*I and five with *Pst*I (figure 1). Poumarat et al further disclose that based on the combination of the different electrophoretic profiles obtained with the three enzymes, the 37 strains could be classified in 13 genomic groups (table 2).

It would be *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to add the *Mycoplasma bovis* isolates of Poumarat et al to the vaccine composition as taught by Boothby et al and Koski et al used in the method of immunizing bovine as combined above because Poumarat et al teach that there is a marked intraspecies genomic heterogeneity among isolates of *Mycoplasma bovis* collected from different geographic origins and that antigenic variability must be taken into account in developing diagnostic and vaccination strategies (page 319).

Applicant Arguments

Applicant urges that Boothby I and Koski et al do not make the claimed invention obvious for reasons stated above. Applicant urges that Poumarat et al teach away from the administration of two inactivated M. bovis biotypes. Applicant asserts that Poumarat et al teach that genetic differences are irrelevant with respect to antigenicity since Pourmarat et al teach that there appears to be no relation between the genomic variability of M. bovis and the antigenic variability. Applicant urges that one of skilled in the art would interpret this teaching to mean that nothing is gained from including biotypes that are genetically different in a vaccine.

Examiner Response to Applicant's Arguments

It is the Examiner's position that the combination of refers teach the claimed invention.

As stated above, Boothby I and Koski et al as combined teach the claimed invention regarding claims 21-38, 42, 50 and 52. The Examiner disagrees with Applicant's assertion that "Poumarat et al teach away from the claimed invention". One of ordinary skill in the art would interpret the teachings of Pourmarat et al differently than Applicant's interpretation because Poumarat et al teach that there is a marked intraspecies genomic heterogeneity among isolates of *Mycoplasma bovis* collected from different geographic origins and that antigenic variability must be taken into account in developing diagnostic and vaccination strategies. Thus, one of ordinary skill in the art

would conclude that multiple biotypes of *M. bovis* should be included in a vaccine composition.

6. The rejection under 35 U.S.C. 103(a) paragraph is maintained for claims 21-38, 42-45 and 48-57 for the reasons set forth on page 8, paragraph 8 of the previous Office Action.

The rejection was on the grounds that the teachings of Boothby et al, Koski et al and Poumarat et al have been described above.

Boothby et al, Koski et al and Poumarat et al do not teach using DNA polymorphisms to determine different *M. bovis* biotypes.

Rawadi teaches that Mycoplasmas can be characterized by random amplification polymorphic DNA (RAPD) (page 179). Rawadi teaches that RAPD generates a genomic fingerprint that can be used as a "personal signature" of a particular species (page 180).

It would be *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to test for different biotypes of *Mycoplasma bovis* used in the method of immunizing bovine as combined above by using DNA polymorphisms because Rawadi teaches that RAPD generates a genomic fingerprint that can be used as a "personal signature" of a particular species (page 180). It would be expected barring evidence to the contrary that RAPD can be used to distinguish between biotypes within a species because Rawadi teaches that difference in DNA fingerprints between two cells can be detected and is a sign of polymorphism during the evolutionary process or mutations that may have occurred throughout the generation (page 180).

Applicant Arguments

Applicant urges that Boothby I, Koshi et al, Poumarat et al and Rawadi et al do not make the claimed invention obvious. Applicant urges that by virtue the references as combined do not teach the claimed limitations, "whereby the incidence of mastitis in the bovine is reduced" and "wherein at least two inactivated M. bovis biotypes".

Examiner's Response to Applicant's Arguments

It is the Examiner's position as stated above, Boothy et al (Boothby I) teaches as method of immunizing animals, Koski et al teach that mycoplasmas can be inactivated by β-propiolactone. Poumarat et al teach that vaccination strategies should take into account the genetic variability of *M. bovis* and therefore, one of skill in the art would conclude that multiple *M. bovis* biotypes can be used in a vaccine composition. Rawadi et al teach that RAPD generates a genomic fingerprint that can be used as a "personal signature" of a particular species. Thus, the claim limitations regarding DNA or RNA biotyping is addressed. The combination of references teach the claimed invention and the rejection is maintained.

7. The rejection under 35 U.S.C. 103(a) paragraph is maintained for claims 21-39, 41-45 and 48-57 for the reasons set forth on pages 9-10, paragraph 9 of the previous Office Action.

The teachings of Boothby et al, Koski et al Poumarat et al and Rawadi have been described above.

Boothby et al, Koski et al Poumarat et al and Rawadi do not teach an antigen derived from another pathogen.

Norcross et al teach a method of preventing and controlling gram-positive cocci such as *Staphylococcus aureus* induced bovine mastitis infections by administering to bovine a vaccine comprising *S. aureus* and *Streptococcus agalactiae* antigens (see the Abstract).

It would be *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to add killed antigens from other pathogens such as *Staphylococcus aureus* to the vaccine compositions used in the method of immunizing bovine as combined above because Norcross et al teach that demonstrates that

vaccine compositions comprising *S. aureus* and *S. agalactiae* can prevent or control mastitis in bovine (see the Abstract) and Boothby et al teach administering vaccine compositions comprising formalin killed *M. bovis* reduces duration of *M. bovis* infections(page 194). It would be expected that a vaccine composition comprising inactivated *M. bovis* strains of multiple biotypes, *S. aureus* and *S. agalactiae*, a pharmaceutically acceptable excipient and a suitable adjuvant would be effect against bovine mastitis in cattle because Norcross et al teach that the preferred vaccine for broad applicability are adapted for a specific locale where the causative agent or agents have been isolated and the vaccine is tailored to combat manifestations of disease for that particular area (column 7). Therefore, a preferred vaccine composition would comprise "in total combination" antigens to prevent or control bovine mastitis.

Applicant's Arguments

Applicant urges that Boothby I, Koski et al, Poumarat et al, Rawadi et al and Norcross et al do not make the claimed invention obvious. Applicant urges that by virtue the references as combined do not teach the claimed limitations, "whereby the incidence of mastitis in the bovine is reduced" and "wherein at least two inactivated M. bovis biotypes".

Examiner's Response to Applicant's Arguments

It is the Examiner's position that the combined reference teach the claimed invention.

As stated above, Boothy et al (Boothby I) teaches as method of immunizing animals, Koski et al teach that mycoplasmas can be inactivated by β-propiolactone. Poumarat et al teach that vaccination strategies should take into account the genetic variability of *M. bovis* and therefore, one of skill in the art would conclude that multiple *M. bovis* biotypes can be used in a vaccine composition. Rawadi et al teach that RAPD generates a genomic fingerprint that can be used as a "personal signature" of a particular species. Thus, the claim limitations regarding DNA or RNA biotyping is

addressed. Norcross et al teach a method of preventing and controlling gram-positive cocci such as *Staphylococcus aureus* induced bovine mastitis infections by administering to bovine a vaccine comprising *S. aureus* and *Streptococcus agalactiae* antigens. Therefore, the claim limitation regarding administering an antigen derived from another pathogen is addressed. The combination of references teach the claimed invention and the rejection is maintained.

8. The rejection under 35 U.S.C. 103(a) paragraph is maintained for claims 21- 45 and 48-57 for the reasons set forth on pages 10-11, paragraph 10 of the previous Office Action.

The teachings of Boothby et al, Koski et al Poumarat et al and Rawadi have been described above.

Boothby et al, Koski et al Poumarat et al and Rawadi do not teach attenuated or inactivated viruses.

Straub teaches that bovine herpesvirus type 1 (BHV1) causes a catarrhal type of mastitis (page 177). Straub teaches that a number of monovalent and multivalent BHV1 vaccines (comprises BHV1, bovine respiratory syncytial virus (BRSV) and parainfluenza type 3 (PI3)) are licensed throughout the world (page 182). Straub teaches that both attenuated and inactivated BHV1 vaccines protect against BHV1 infections (page 182).

It would be *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to add bovine viruses from other pathogens such as bovine herpesvirus type 1, bovine respiratory syncytial virus and parainfluenza type 3 to the vaccine compositions as taught by Straub used in the method of immunizing bovine as combined above because can prevent bovine infectious disease, including mastitis (page 183) and Boothby et al teach administering vaccine compositions comprising formalin killed *M. bovis* reduces duration of *M. bovis* infections (page 194). It would be expected that a vaccine composition comprising inactivated *M. bovis* strains of multiple biotypes, bovine viruses such as BHV1, BRSV and PI3, a pharmaceutically acceptable excipient and a suitable adjuvant would be effective in a method of immunizing against bovine mastitis in cattle because Boothby et al have demonstrated that *M. bovis* protect against mastitis in bovine and Straub has demonstrated that bovine herpesvirus type 1 protects against bovine infectious disease, including mastitis. Additionally, Straub teaches that BVH1 infections are frequently complicated by bacterial infections as well as occurring simultaneously with bovine virus diarrhea and/or parainfluenza type 3 (see

the Abstract). Therefore, one of ordinary skill in the art would reasonably conclude that a multivalent vaccine comprising viruses as well as bacteria would be effective in immunizing bovine against mastitis.

Applicant's Arguments

Applicant urges that Boothby I, Koski et al, Poumarat et al, Rawadi et al, and Staub et al do not make the claimed invention obvious. Applicant urges that by virtue the references as combined do not teach the claimed limitations, "whereby the incidence of mastitis in the bovine is reduced" and "wherein at least two inactivated M. bovis biotypes".

Examiner's Response to Applicant's Arguments

It is the Examiner's position that the combined reference teach the claimed invention.

As stated above, Boothy et al (Boothby I) teaches as method of immunizing animals, Koski et al teach that mycoplasmas can be inactivated by β-propiolactone. Poumarat et al teach that vaccination strategies should take into account the genetic variability of *M. bovis* and therefore, one of skill in the art would conclude that multiple *M. bovis* biotypes can be used in a vaccine composition. Rawadi et al teach that RAPD generates a genomic fingerprint that can be used as a "personal signature" of a particular species. Thus, the claim limitations regarding DNA or RNA biotyping is addressed. Staub et al teach bovine herpesvirus type 1 (BHVI) can cause mastitis and can be in both attenuated and inactivated form and used to protect against BHVI infections. One of ordinary skill in the art would be motivated to add both viruses and

other pathogens to the vaccine compositions of Staub et al because Straub et al teach the method of immunizing bovine as combined above because can prevent bovine infectious disease, including mastitis (page 183) and Boothby et al teach administering vaccine compositions comprising formalin killed *M. bovis* reduces duration of *M. bovis* infections (page 194). The combination of references teach the claimed invention and the rejection is maintained.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 25 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 25 contains trademarks, (e.g. REGRESSIN®). The components in these vaccine compositions or concentrations of the vaccine components may vary, therefore the use of trademarks to a particular vaccine composition should be deleted from the claims. Correction is required.

10. Claims 21-46 and 48-61 are indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite "whereby the incidence of mastitis in the bovine animals is reduced". It is unclear what Applicant is referring since the preamble of the method recites "bovine animals".

There is no indication that the bovine animals of the preamble have mastitis. Correction and/or clarification is required.

11. Claims 21-46 and 48-61 are indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

Claims 21-46 and 48-61 are directed a method of immunizing bovine animals comprising administering to the bovine animals at least one inactivated or attenuated *M. bovis* biotype, whereby the incidence of mastitis in the bovine animals is reduced.

The specification teaches at page 19, pre-vaccination and post-vaccination incidence. The specification teaches at page 21, vaccination at site 1 and 2. The specification discloses that mastitis incidence was reduced at the sites.

The instant specification has failed to teach "incidence" as used by its art recognized meaning. Gordis *(Epidemiology, third Edition, 2004, pages 33-37)* teaches that incidence of disease is defined as the number of new cases of a disease that occur during a specified period of time in a population at risk for developing the disease (page 33). Gordis teaches that prevalence is defined as the number of cases of a disease present in the population at a specified time (page 35). At page 19 of the instant specification, Applicant discloses that at pre-vaccination the base line incidence was 155 confirmed *M. bovis* infections. At post-vaccination, 1st year, 24 positive clinical *M. bovis* infection were confirmed and at the 2nd year, 1 positive clinical *M. bovis* infection was confirmed. Are the confirmed cases in year 1 and 2 new cases? What specified period of time is used to calculate the incidence of disease. It appears that Applicant

has disclosed prevalence of disease and not incidence. Also, a similar situation is found at page 21.

Status of Claims

12. No claims are allowed.

13. Any inquiry of the general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308–0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Office Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for the Group 1600 is (703) 872-9306.

Any inquiry concerning this communication from the examiner should be directed to Vanessa L. Ford, whose telephone number is (571) 272-0857. The examiner can normally be reached on Monday – Friday from 9:00 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith, can be reached at (571) 272-0864.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov./>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vanessa L. Ford
Biotechnology Patent Examiner
June 9, 2006

NITA MINNFIELD
PRIMARY EXAMINER